Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2015/2016

COURSE NAME	:	PRODUCTION PLANNING AND CONTROL
COURSE CODE	:	BPC 22103
PROGRAMME CODE	:	BPB
EXAMINATION DATE	:	JUNE / JULY 2016
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWERS **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **SIX (6)** PAGES

Q1   (a)   Determine Low Level Code for product structure in **Figure Q1(a)**.
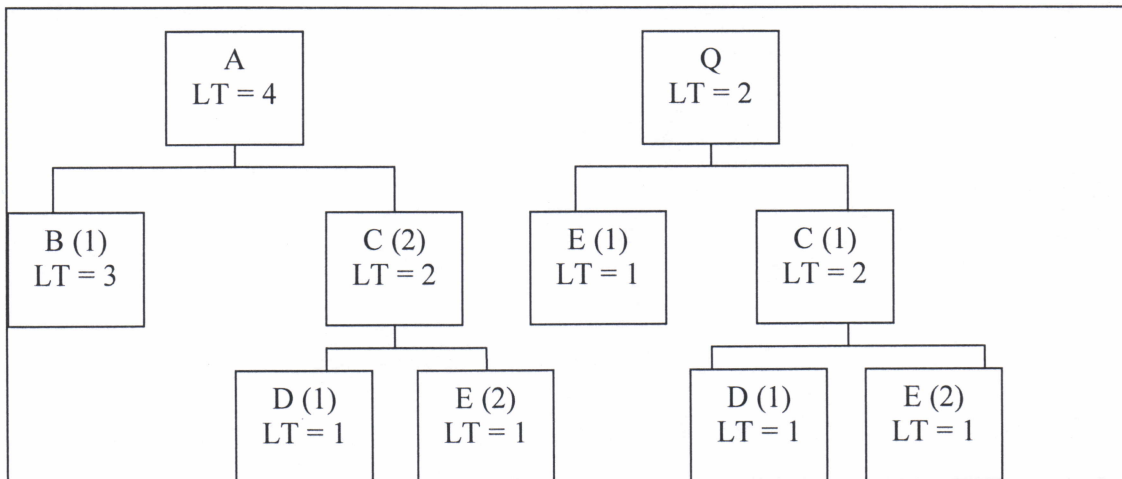
Figure Q1(a)

(3 marks)

(b)   **Table Q1(b)(i)** indicates operation cost for a product and **Table Q1(b)(ii)** indicates demand for the product.

Table Q1(b)(i)

Purchase Cost	RM 200
Ordering Cost	RM 300
Holding Cost fraction per period	0.01

Table Q1(b)(ii)

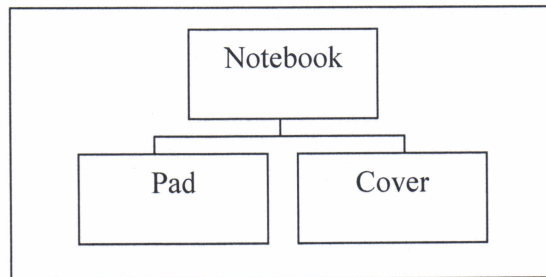| Period	1	2	3	4	5	6
Demand (units)	120	50	0	360	70	50

Calculate the optimum order size using Wagner-Whitin algorithm.

(20 marks)

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Q2   (a)   Explain capacity planning characteristics below for each of planning level phases.

        (i)   Capacity tool

        (ii)   Time horizon

        (iii)   Plan

(9 marks)

    (b)   The XYZ Company produce Notebook with product structure in **Figure Q2(b)**. The Material Requirement Planning (MRP) for these three item shows in **Table Q2(b)(i)**, **Table Q2(b)(ii)** and **Table Q2(b)(iii)**. Meanwhile **Table Q2(b)(iv)** shows the work centers that used to fabricated the notebooks and accompanying time requirement.

Figure Q2(b)

Table Q2(b)(i)

Item: ~~H frame~~ Notebook		Period					
		1	2	3	4	5	6
Gross requirements		25	25	25	25	25	25
Scheduled Receipts							
Projected available balance	30	5	0	0	0	0	0
Planned order release		20	25	25	25	25	0
Q = L4L, LT = 1, SS = 0							

Table Q2(b)(ii)

Item: ~~Painted Surface~~ Pad		Period					
		1	2	3	4	5	6
Gross requirements		20	25	25	25	25	0
Scheduled Receipts		15					
Projected available balance	10	5	10	15	20	25	25
Planned order release		30	30	30	30	0	0
Q = 30, LT = 1, SS = 5							

Table Q2(b)(iii)

Item: ~~H mount~~ Cover		Period					
		1	2	3	4	5	6
Gross requirements		20	25	25	25	25	0
Scheduled Receipts		50					
Projected available balance	10	40	15	40	15	40	40
Planned order release		50	0	50	0	0	0
Q = 50, LT = 2, SS = 0							

Table Q2(b)(iv)

Operation	Work Center	Setup Time	Run time
Netbook assembly	100	2 hours	10 minutes
Pad production	200	3 hours	5 minutes
Cover production	300	4 hours	9 minutes

Calculate total load for Notebook, Pad and Cover for next six periods in each work center.

(13 marks)

(c)   Given Rated Capacity for Notebook in **Q2**(b) is 30 standard hours for period 1 to period 6.

   (i)   Construct the load report based on answer in **Q2**(b).

(7 marks)

   (ii)   Suggest possible courses of action.

(3 marks)

(d)   Determine **THREE (3)** actions to be taken if there is an imbalance of available capacity.

(6 marks)

(e)   List the input to determine the start and finish date using Back Scheduling method.

(4 marks)

Q3   (a)   Company ABC monitors the flow of work coming to the work center and the performance of work center by using his input/output report. **Table Q3(a)** shows the input/output data at the end of week six.

Table Q3(a)

	Week					
	1	2	3	4	5	6
Planned input	60	60	60	60	60	60
Actual input	68	70	75	70	68	60
Planned output	65	65	65	65	65	65
Actual output	60	62	62	63	64	65

(i)   Construct the complete input/output report for company ABC.

(8 marks)

(ii)   Calculate the planned backlog.

(3 marks)

(iii) Calculate the actual backlog.

(3 marks)

(b)   A company has received four orders to provide parts. The processing time and due date is as shown in the **Table Q3(b)**.

Table Q3(b)

Job	Processing Time	Due Date (Day)
A	205	6
B	203	3
C	208	4
D	210	8

Determine the run sequence for each of the sequencing rule following with assumption, today is a day 200 on the company's schedule.

(i)   Shortest Process Time (SPT)

(2 marks)

(ii)   Earliest Due Date (EDD)

(2 marks)

(iii) Determine the decision rules would be the best option for the job.

(4 marks)

Q4   (a)   List **SEVEN (7)** steps for the purchasing cycle.

(7 marks)

(b)   Describe **THREE (3)** important factors in selecting suppliers.

(6 marks)

-END OF QUESTIONS –

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